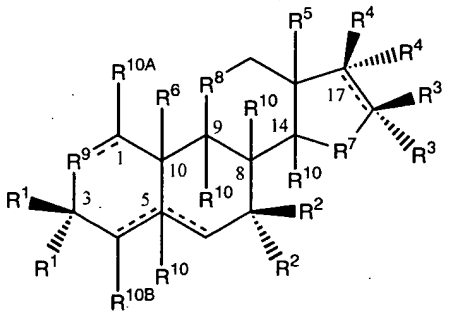
Amendments to the claims

This listing of claims replaces the prior original claims.

Claim 1 (currently amended): A method to prevent, treat, ameliorate or slow the progression of cystic fibrosis, sickle cell disease, autism, neutropenia or ~~thrombocytpoenia in a subject~~ thrombocytopenia in a subject, or to treat a symptom of the cystic fibrosis, sickle cell disease, autism, neutropenia or thrombocytopenia, comprising administering to a subject, or delivering to the subject's tissues, an effective amount of a formula 1 compound having the structure 5, 6, 7, 8, 9, 10, 11, 12, 13 or 14



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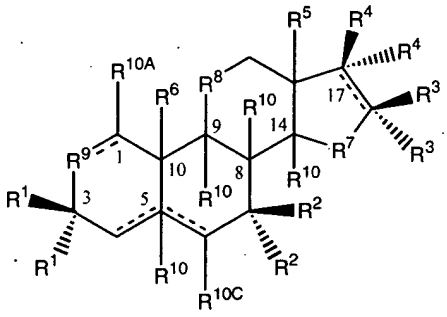

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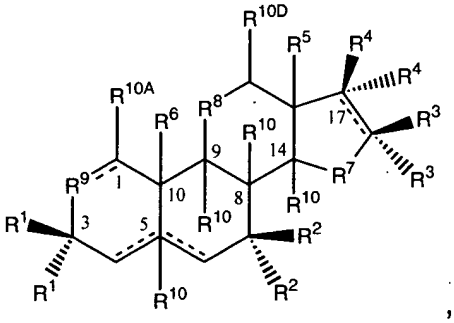

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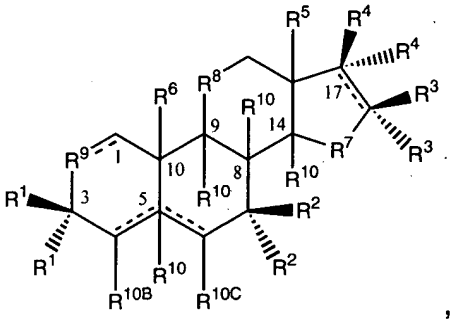

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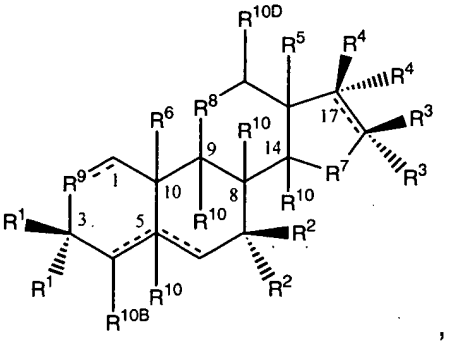

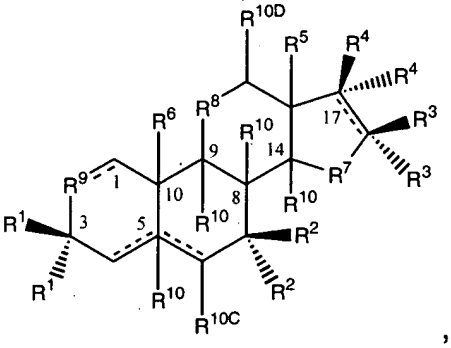

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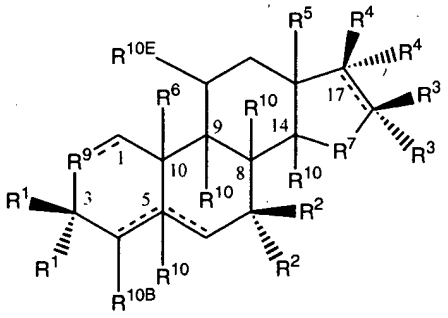

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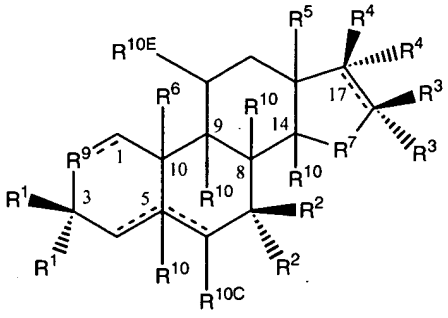

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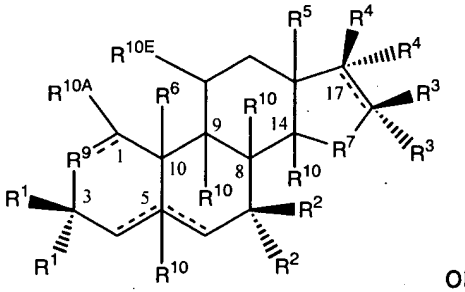

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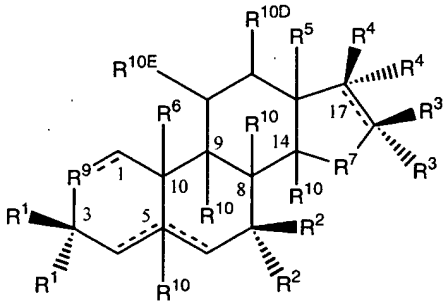

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or a metabolic precursor or a metabolite thereof, wherein

R^{10} moieties at the 5 (if present), 8, 9 and 14 positions respectively are in the α,α,α,α, α,α,α,β, α,α,β,α, α,β,α,α, β,α,α,α, α,α,β,β, α,β,α,β, β,α,α,β, β,α,β,α, β,β,α,α, α,β,β,α, α,β,β,β, β,α,β,β, β,β,α,β, β,β,β,α or β,β,β,β configurations,

wherein R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} respectively are in the α,α, α,β, β,α or β,β configurations,

wherein, each R^1, R^2, R^3, R^4, R^5, R^6, R^{10}, R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} independently are -H, -OH, $-OR^{PR}$, $-SR^{PR}$, $-N(R^{PR})_2$, $-O\text{-}Si\text{-}(R^{13})_3$, -CHO, -CHS, -CN, -SCN, $-NO_2$, $-NH_2$, -COOH, $-OSO_3H$, $-OPO_3H$, an ester, a thioester, a thionoester, a phosphoester, a phosphothioester, a phosphonoester, a phosphiniester, a sulfite ester, a sulfate ester, an amide, an amino acid, a peptide, an ether, a thioether, an acyl group, a thioacyl group, a carbonate, a carbamate, a halogen, an optionally substituted alkyl group, an optionally substituted alkenyl group, an optionally substituted alkynyl group, an optionally substituted aryl moiety, an optionally substituted heteroaryl moiety, an

optionally substituted heterocycle, an optionally substituted monosaccharide, an optionally substituted oligosaccharide, a nucleoside, a nucleotide, an oligonucleotide, a polymer, or,

one more of R^1, R^2, R^3, R^4, R^5, R^6, R^{10}, R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} are =O, =S, =N-OH, $=CH_2$, $=CH-CH_3$, or an independently selected spiro ring and the hydrogen atom or the second variable group that is bonded to the same carbon atom is absent, or,

one or more of two adjacent R^1-R^6, R^{10}, R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} comprise an independently selected epoxide, acetal, a thioacetal, ketal or thioketal;

R^7 is $-C(R^{10})_2-$, $-C(R^{10})_2-C(R^{10})_2-$, $-C(R^{10})_2-C(R^{10})_2-C(R^{10})_2-$, $-C(R^{10})_2-O-C(R^{10})_2-$, $-C(R^{10})_2-S-C(R^{10})_2-$, $-C(R^{10})_2-NR^{PR}-C(R^{10})_2-$, -O-, $-O-C(R^{10})_2-$, -S-, $-S-C(R^{10})_2-$, $-NR^{PR}-$ or $-NR^{PR}-C(R^{10})_2-$;

R^8 and R^9 independently are $-C(R^{10})_2-$, $-C(R^{10})_2-C(R^{10})_2-$, -O-, $-O-C(R^{10})_2-$, -S-, $-S-C(R^{10})_2-$, $-NR^{PR}-$ or $-NR^{PR}-C(R^{10})_2-$, or one or both of R^8 or R^9 independently are absent, leaving a 5-membered ring;

R^{13} independently is C_{1-6} alkyl; and

R^{PR} independently is -H or a protecting group, provided that one R^4 is $-NH_2$, an optionally substituted amine, $-N(R^{PR})^2$, =NOH, =NO-optionally substituted alkyl, an amide, a carbamate or an N-linked amino acid, or the condition is cystic fibrosis or a sickle cell disease.

Claim 2 (original): The method of claim 1 wherein one each of R^1, R^2, R^3 and R^4 are -H, and, when no double bond links the second R^1, R^2, R^3 and R^4 to the ring to which it is bonded and no double bond is present at the 16-17 position, then the second R^1, R^2, R^3 and R^4 respectively are in the $\alpha,\alpha,\alpha,\alpha$, $\alpha,\alpha,\alpha,\beta$, $\alpha,\alpha,\beta,\alpha$, $\alpha,\beta,\alpha,\alpha$, $\beta,\alpha,\alpha,\alpha$, $\alpha,\alpha,\beta,\beta$, $\alpha,\beta,\alpha,\beta$, $\beta,\alpha,\alpha,\beta$, $\beta,\alpha,\beta,\alpha$, $\beta,\beta,\alpha,\alpha$, $\alpha,\beta,\beta,\alpha$, α,β,β,β, β,α,β,β, β,β,α,β, β,β,β,α o r β,β,β,β configurations and the second R^1, R^2, R^3 and R^4 are optionally independently selected from -H, -F, -Cl, -Br, -I, -OH, -SH, $-NH_2$, -COOH, $-CH_3$, $-C_2H_5$, $-C(CH_3)_3$, $-OCH_3$, $-OC_2H_5$, $-CF_3$, $-CH_2OH$, $-C(O)CH_3$, $-C(O)CH_2OH$, $-C(O)CH_2F$, $-C(O)CH_2Cl$, $-C(O)CH_2Br$,

$-C(O)CH_2I$, $-C(O)CF_3$, $-C_2F_5$, =O, $=CH_2$, $=CHCH_3$, amino acid, carbamate, carbonate, optionally substituted C1-C20 alkyl, optionally substituted C1-C20 ether, optionally substituted C1-C20 ester, optionally substituted C1-C20 thioether, optionally substituted C1-C20 thioester, optionally substituted monosaccharide, optionally substituted disaccharide, optionally substituted oligosaccharide.

Claim 3 (original): The method of claim 2 wherein

(a) R^{10A} is bonded to the ring to which it is attached by a single bond and a double bond is present at (i) the 1-2 position, or (ii) the 1-2 and 16-17 positions; or

(b) R^{10B} is bonded to the ring to which it is attached by a single bond and a double bond is present at the 4-5 position; or

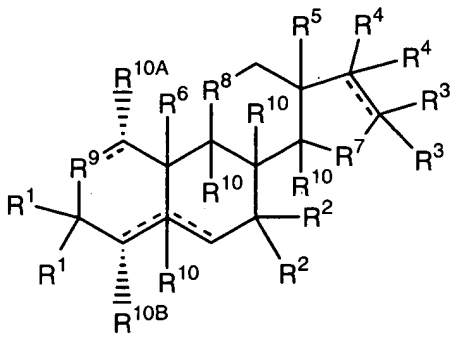
I R^{10c} is bonded to the ring to which it is attached by a single bond and a double bond is present at the 5-6 position; or

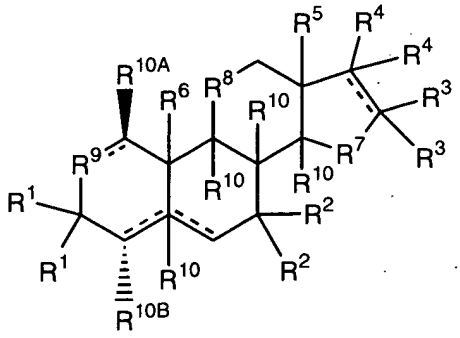
(d) R^{10A} and R^{10B} are bonded to the rings to which they are attached by a single bond and a double bond is present at (i) the 1-2 and 4-5 positions, or (ii) the 1-2, 4-5 and 16-17 positions;

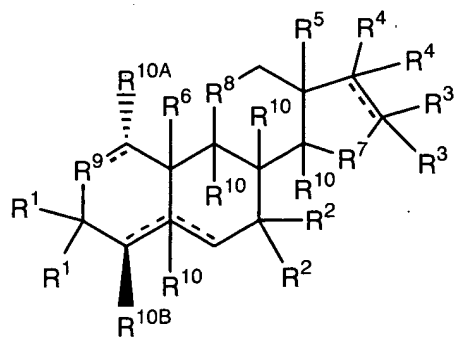
(e) R^{10A} and R^{10C} are bonded to the rings to which they are attached by a single bond and a double bond is present at (i) the 1-2 and 5-6 positions, or (ii) the 1-2, 5-6 and 16-17 positions; or

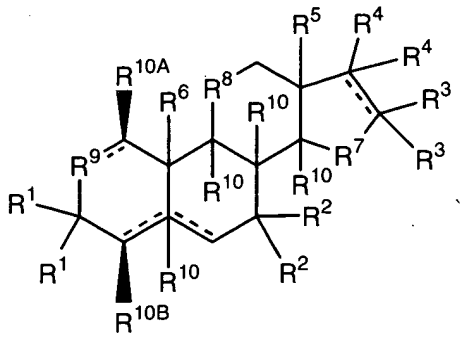
(f) no double bond is present.

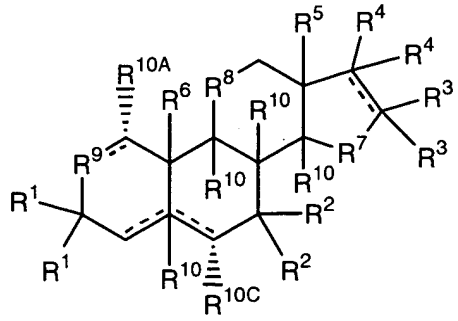
Claim 4 (original): The method of claim 1 wherein the compounds of structure 5, 6, 7, 8, 9, 10, 11 and 12 have the structure

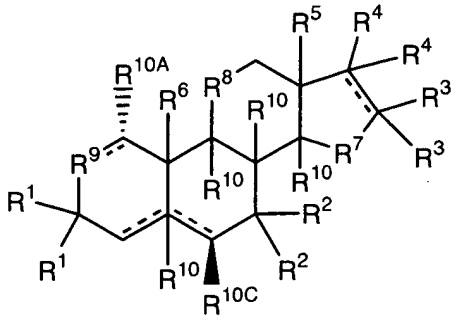


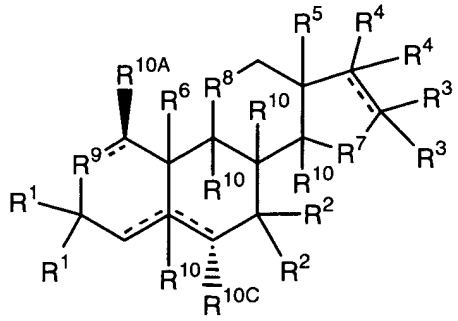


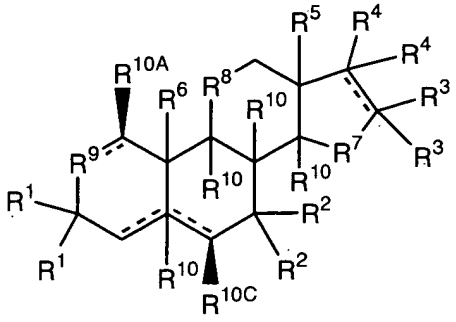


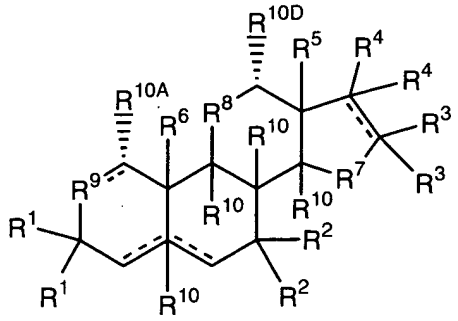


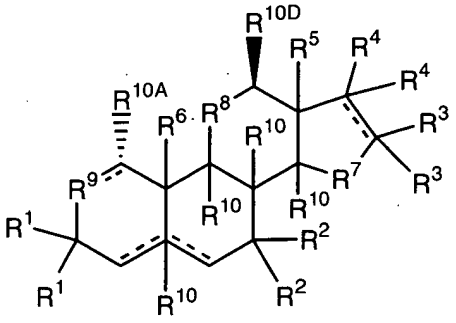


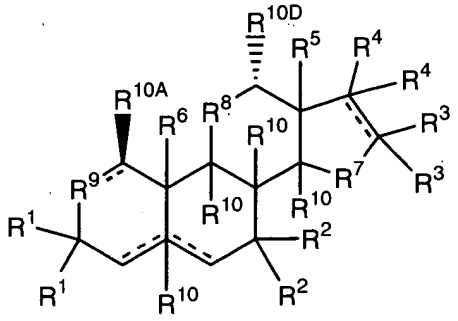


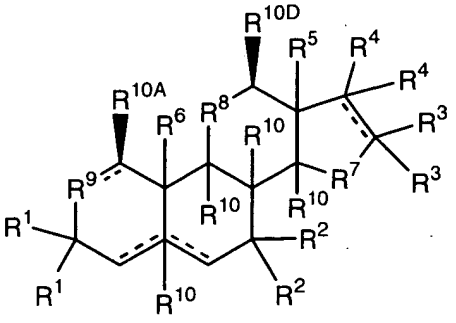












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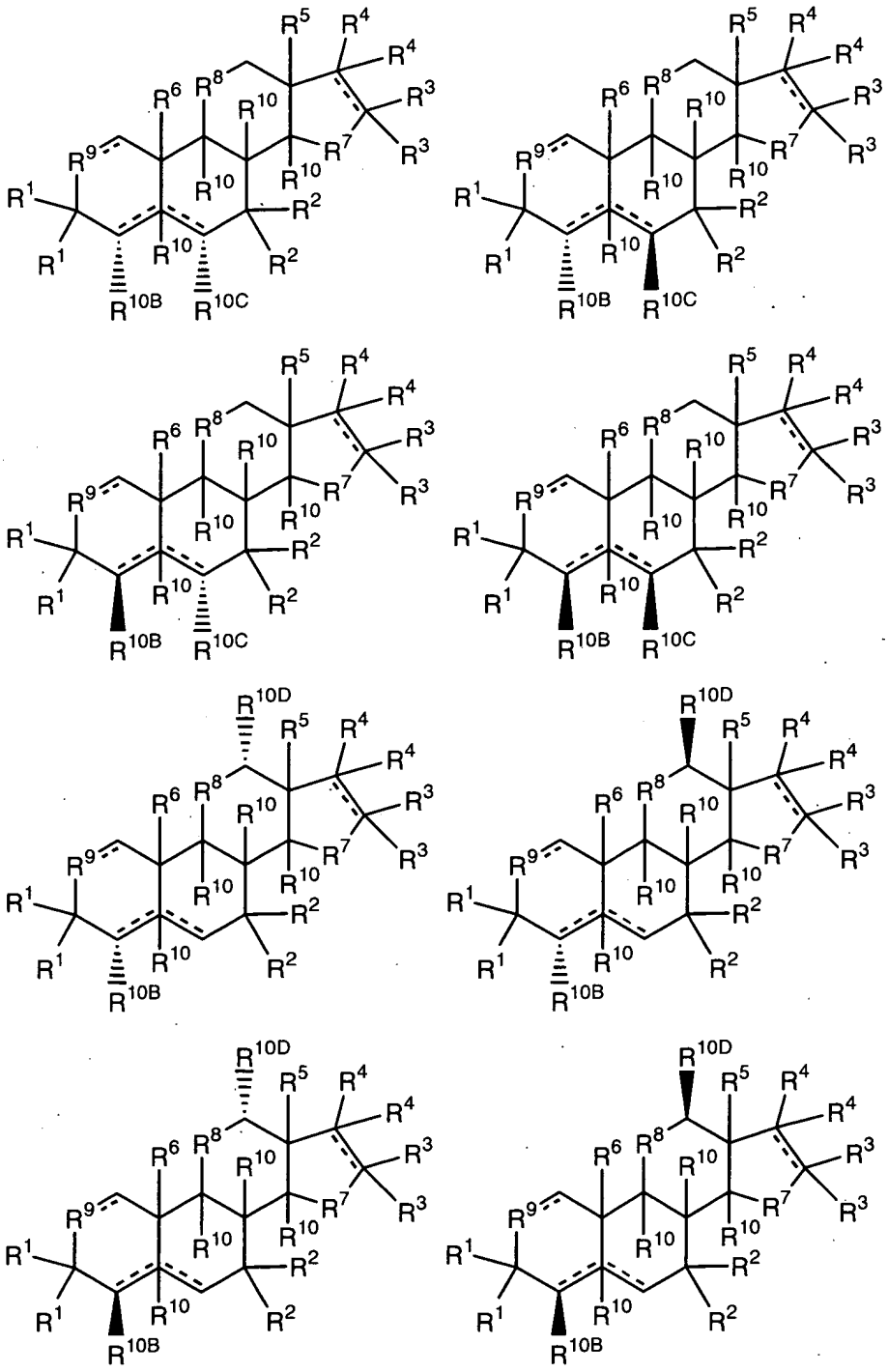
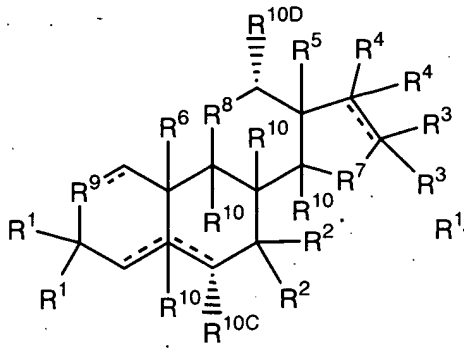
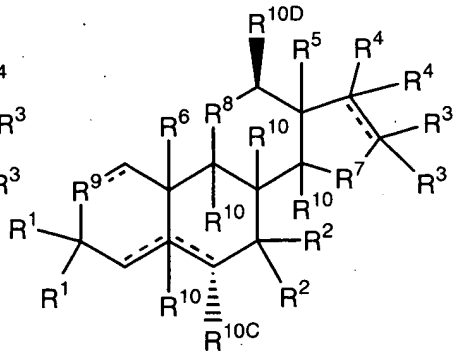
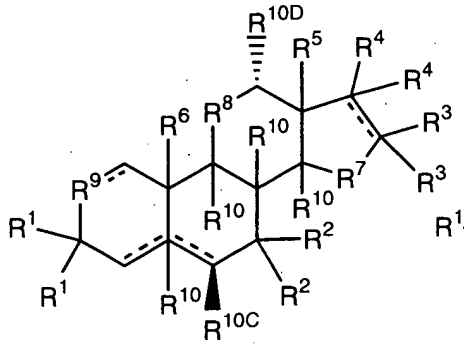
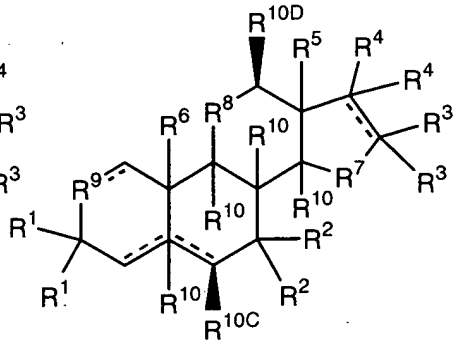
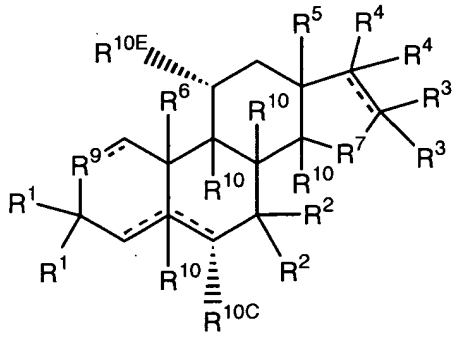


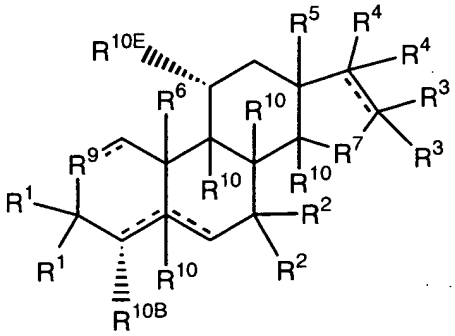


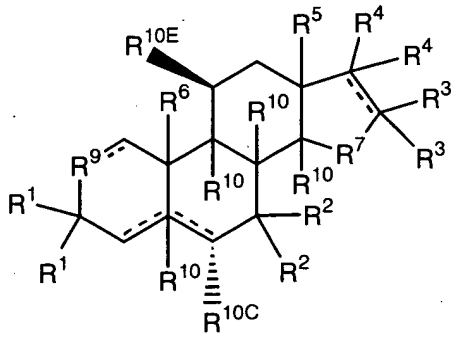


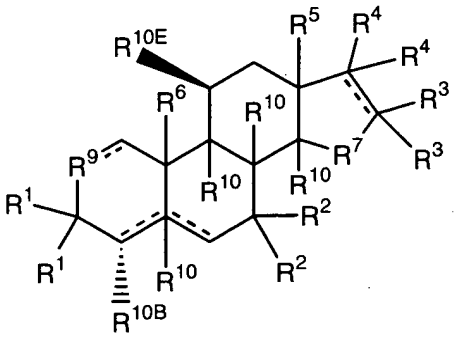


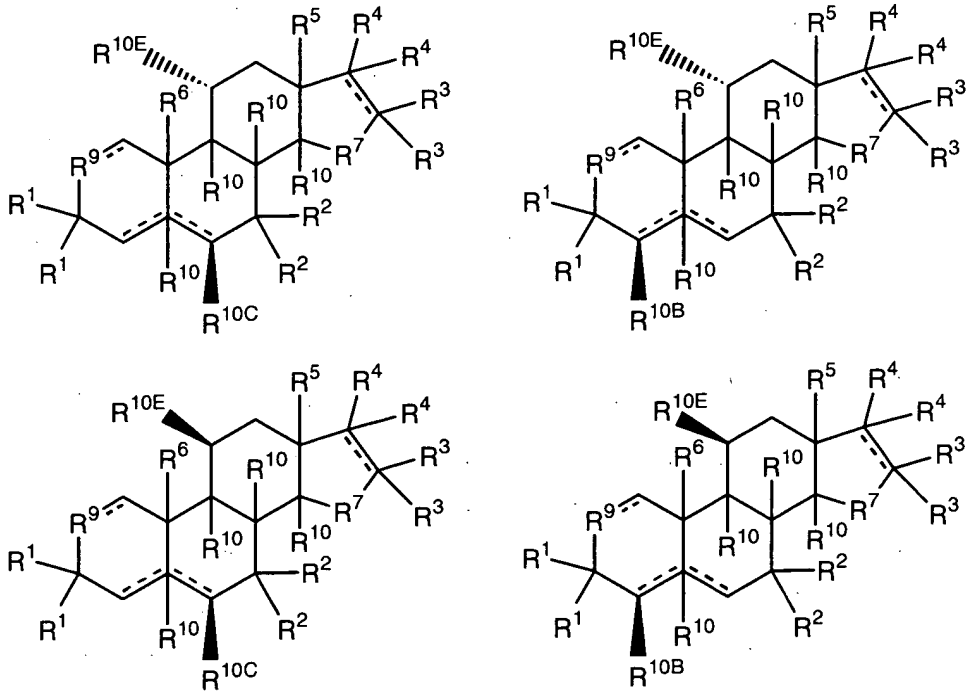












provided that if a double bond is present at the 1-2, 4-5 or 5-6 positions, then R^{10A}, R^{10B} or R^{10C} respectively are bonded to the ring to which they are linked by a single bond.

Claim 5 (original): The method of claim 4 wherein (1) R^5 and R^6 respectively are in the α,α, α,β, β,α or β,β configuration and R^5 and R^6 are optionally both $-CH_3$ or are optionally selected from -H, $-CH_3$ and $-CH_2OH$ or (2) R^5 and R^6 are both in the β-configuration and R^5 and R^6 are optionally both -H, $-CH_3$ or $-CH_2OH$.

Claim 6 (original): The method of claim 5 wherein R^{10} at the 5, 8, 9 and 14-positions respectively are

(1) -H, -H, -H, -H;

(2) -H, -H, halogen (-F, -Cl, -Br or -I), -H;

(3) -H, -H, -H, -OH;

(4) -H, -H, halogen (-F, -Cl, -Br or -I), -OH;

(5) -optionally substituted alkyl (e.g., $-CH_3$, $-CH_2OH$, $-CH_2O$-ester, $-C_2H_5$), -H, -H, -H;

(6) -optionally substituted alkyl (e.g., $-CH_3$, $-CH_2OH$, $-CH_2O$-ester, $-C_2H_5$), -H, halogen (-F, -Cl, -Br or -I), -H;

(7) -optionally substituted alkyl (e.g., $-CH_3$, $-CH_2OH$, $-CH_2O$-ester, $-C_2H_5$), -H, -H, -OH;

(8) -acyl (e.g., $-C(O)-(CH_2)_{0-2}-CH_3$), -H, -H, -H;

(9) -ester (e.g., acetoxy or propionoxy), -H, -H, -H;

(10) -ether (e.g., $-O-(CH_2)_{0-2}-CH_3$), -H, -H, -H;

(11) -ester (e.g., acetoxy, propionoxy, $-O-C(O)-(CH_2)_{1-6}-H$), -H, halogen (e.g., -F, -Cl, -Br), -H;

(12) -ester (e.g., acetoxy or propionoxy), -H, -H, -OH;

(13) -H, -H, -H, -acyl (e.g., $-C(O)-(CH_2)_{0-2}-CH_3$);

(14) -H, -H, -H, -ester (e.g., acetoxy or propionoxy); or

(15) -H, -H, -H, -ether (e.g., $-O-(CH_2)_{0-2}-CH_3$, $-OCH_3$, $-OC_2H_5$, $-OCH_2OH$, $-OCH_2F$, $-OCH_2Br$, $-OCH_2COOH$, $-OCH_2NH_2$, $-OCH_2CH_2OH$, $-OCH_2CH_2F$, $-OCH_2CH_2Br$, $-OCH_2CH_2COOH$ or $-OCH_2CH_2NH_2$).

Claim 7 (original): The method of claim 6 wherein R^7 is $-CH_2-$, -CHOH-, $-CH(\alpha R^{10})-$, -CH(ester)-, -CH(alkoxy)- or -CH(halogen)- where the hydroxyl, ester or alkoxy group or the halogen atom is present in the α-configuration and the alkoxy group is optionally selected from $-OCH_3$, $-OC_2H_5$ and $-OC_3H_7$ and the halogen atom is -F, -Cl, -Br or -I.

Claim 8 (original): The method of claim 6 wherein R^8 is $-CH_2-$, $-CF_2-$, -CHOH-, $-CH(\alpha R^{10})-$, -CH(ester)-, -CH(alkoxy)- or -CH(halogen)- where the hydroxyl, ester or alkoxy group or the halogen atom is present in the α-configuration and the alkoxy group is optionally selected from $-OCH_3$, $-OC_2H_5$ and $-OC_3H_7$ and the halogen atom is -F, -Cl, -Br or -I.

Claim 9 (original): The method of claim 1 wherein the formula 1 compound is an analog of 16α-bromo-3β-hydroxy-5α-androstan-17-one, 16α-fluoro-3β-hydroxy-5α-androstan-17-one, 16α-chloro-3β-hydroxy-5α-androstan-

17-one, 16β-bromo-3β-hydroxy-5α-androstan-17-one, 16β-fluoro-3β-hydroxy-5α-androstan-17-one, 16β-chloro-3β-hydroxy-5α-androstan-17-one, 16α,3β-dihydroxy-5α-androstan-17-one, 16β,3β-dihydroxy-5α-androstan-17-one, 16α,3α-dihydroxy-5α-androstan-17-one, 16β,3α-dihydroxy-5α-androstan-17-one, 16α-bromo-3β-hydroxy-5α-androstan-17-one hemihydrate, 3α-hydroxy-16α-fluoroandrostane-17-one, 3β-hydroxy-16α-fluoroandrostane-17-one, 17α-hydroxy-16α-fluoroandrostane-3-one, 17β-hydroxy-16α-fluoroandrostane-3-one, 17α-hydroxy-16α-fluoroandrostane-4-one, 17β-hydroxy-16α-fluoroandrostane-4-one, 17α-hydroxy-16α-fluoroandrostane-6-one, 17β-hydroxy-16α-fluoroandrostane-6-one, 17α-hydroxy-16α-fluoroandrostane-7-one, 17β-hydroxy-16α-fluoroandrostane-7-one, 17α-hydroxy-16α-fluoroandrostane-11-one, 17β-hydroxy-16α-fluoroandrostane-11-one, 16α-fluoroandrost-5-ene-17-one, 7α-hydroxy-16α-fluoroandrost-5-ene-17-one, 7β-hydroxy-16α-fluoroandrost-5-ene-17-one, 4α-hydroxy-16α-fluoroandrost-5-ene-17-one, 3α-hydroxy-16α-fluoroandrost-5-ene-17-one, 3β-hydroxy-16α-fluoroandrost-5-ene-17-one,4β-hydroxy-16α-fluoroandrost-5-ene-17-one, 6α-hydroxy-16α-fluoroandrost-5-ene-17-one, 6β-hydroxy-16α-fluoroandrost-5-ene-17-one, 11α-hydroxy-16α-fluoroandrost-5-ene-17-one, 11β-hydroxy-16α-fluoroandrost-5-ene-17-one, 4α,17β-dihydroxy-16α-fluoroandrost-5-ene, 4β,17β-dihydroxy-16α-fluoroandrost-5-ene, 6α,17β-dihydroxy-16α-fluoroandrost-5-ene, 6β,17β-dihydroxy-16α-fluoroandrost-5-ene, 11α,17β-dihydroxy-16α-fluoroandrost-5-ene, 11β,17β-dihydroxy-16α-fluoroandrost-5-ene, 4α,17α-dihydroxy-16α-fluoroandrost-5-ene, 4β,17α-dihydroxy-16α-fluoroandrost-5-ene, 6α,17α-dihydroxy-16α-fluoroandrost-5-ene, 6β,17α-dihydroxy-16α-fluoroandrost-5-ene, 11α,17α-dihydroxy-16α-fluoroandrost-5-ene, 11β,17α-dihydroxy-16α-fluoroandrost-5-ene, 7α,17β-dihydroxy-16α-fluoroandrost-5-ene, 7β,17β-dihydroxy-16α-fluoroandrost-5-ene, 3α,17β-dihydroxy-16α-fluoroandrost-5-ene, 3β,17β-dihydroxy-16α-fluoroandrost-5-ene, 3α,17α-dihydroxy-16α-fluoroandrost-5-ene, 3β,17α-dihydroxy-16α-

fluoroandrost-5-ene, 1α,17β-dihydroxy-16α-fluoroandrost-5-ene, 1β,17β-dihydroxy-16α-fluoroandrost-5-ene, 2α,17β-dihydroxy-16α-fluoroandrost-5-ene, 2β,17β-dihydroxy-16α-fluoroandrost-5-ene, 12α,17β-dihydroxy-16α-fluoroandrost-5-ene, 12β,17β-dihydroxy-16α-fluoroandrost-5-ene, 1α,17α-dihydroxy-16α-fluoroandrost-5-ene, 1β,17α-dihydroxy-16α-fluoroandrost-5-ene, 2α,17α-dihydroxy-16α-fluoroandrost-5-ene, 2β,17α-dihydroxy-16α-fluoroandrost-5-ene, 12α,17α-dihydroxy-16α-fluoroandrost-5-ene, 12β,17α-dihydroxy-16α-fluoroandrost-5-ene, 15α,17β-dihydroxy-16α-fluoroandrost-5-ene, 15β,17β-dihydroxy-16α-fluoroandrost-5-ene, 17β,18-dihydroxy-16α-fluoroandrost-5-ene, 17β,19-dihydroxy-16α-fluoroandrost-5-ene, 15α,17α-dihydroxy-16α-fluoroandrost-5-ene, 15β,17α-dihydroxy-16α-fluoroandrost-5-ene, 17α,18-dihydroxy-16α-fluoroandrost-5-ene, 17α,19-dihydroxy-16α-fluoroandrost-5-ene, 16α-fluoroandrost-4-ene-17-one, 7α-hydroxy-16α-fluoroandrost-4-ene-17-one, 7β-hydroxy-16α-fluoroandrost-4-ene-17-one, 3α-hydroxy-16α-fluoroandrost-4-ene-17-one, 3β-hydroxy-16α-fluoroandrost-4-ene-17-one, 4α-hydroxy-16α-fluoroandrost-4-ene-17-one, 4β-hydroxy-16α-fluoroandrost-4-ene-17-one, 6α-hydroxy-16α-fluoroandrost-4-ene-17-one, 6β-hydroxy-16α-fluoroandrost-4-ene-17-one, 11α-hydroxy-16α-fluoroandrost-4-ene-17-one, 11β-hydroxy-16α-fluoroandrost-4-ene-17-one, 4α,17β-dihydroxy-16α-fluoroandrost-4-ene, 4β,17β-dihydroxy-16α-fluoroandrost-4-ene, 6α,17β-dihydroxy-16α-fluoroandrost-4-ene, 6β,17β-dihydroxy-16α-fluoroandrost-4-ene, 11α,17β-dihydroxy-16α-fluoroandrost-4-ene, 11β,17β-dihydroxy-16α-fluoroandrost-4-ene, 4α,17α-dihydroxy-16α-fluoroandrost-4-ene, 4β,17α-dihydroxy-16α-fluoroandrost-4-ene, 6α,17α-dihydroxy-16α-fluoroandrost-4-ene, 6β,17α-dihydroxy-16α-fluoroandrost-4-ene, 11α,17α-dihydroxy-16α-fluoroandrost-4-ene, 11β,17α-dihydroxy-16α-fluoroandrost-4-ene, 7α,17β-dihydroxy-16α-fluoroandrost-4-ene, 7β,17β-dihydroxy-16α-fluoroandrost-4-ene, 3α,17β-dihydroxy-16α-fluoroandrost-4-ene, 3β,17β-dihydroxy-16α-fluoroandrost-4-ene, 3α,17α-dihydroxy-16α-fluoroandrost-4-ene, 3β,17α-

dihydroxy-16α-fluoroandrost-4-ene, 1α,17β-dihydroxy-16α-fluoroandrost-4-ene, 1β,17β-dihydroxy-16α-fluoroandrost-4-ene, 2α,17β-dihydroxy-16α-fluoroandrost-4-ene, 2β,17β-dihydroxy-16α-fluoroandrost-4-ene, 12α,17β-dihydroxy-16α-fluoroandrost-4-ene, 12β,17β-dihydroxy-16α-fluoroandrost-4-ene, 1α,17α-dihydroxy-16α-fluoroandrost-4-ene, 1β,17α-dihydroxy-16α-fluoroandrost-4-ene, 2α,17α-dihydroxy-16α-fluoroandrost-4-ene, 2β,17α-dihydroxy-16α-fluoroandrost-4-ene, 12α,17α-dihydroxy-16α-fluoroandrost-4-ene, 12β,17α-dihydroxy-16α-fluoroandrost-4-ene, 15α,17β-dihydroxy-16α-fluoroandrost-4-ene, 15β,17β-dihydroxy-16α-fluoroandrost-4-ene, 17β,18-dihydroxy-16α-fluoroandrost-4-ene, 17β,19-dihydroxy-16α-fluoroandrost-4-ene, 15α,17α-dihydroxy-16α-fluoroandrost-4-ene, 15β,17α-dihydroxy-16α-fluoroandrost-4-ene, 17α,18-dihydroxy-16α-fluoroandrost-4-ene, 17α,19-dihydroxy-16α-fluoroandrost-4-ene, 3β,17β-dihydroxyandrost-5-ene, 3β-hydroxy-7,17-dioxoandrost-5-ene, 3α-hydroxy-7,17-dioxoandrost-5-ene, 3,17-dioxoandrost-5-ene, 3,17-dioxoandrost-4-ene, 3,17-dioxoandrost-1,4-diene, 3β,7β,17β-trihydroxyandrost-5-ene, 3β,7β,17β-trihydroxyandrostane, 3β,16α-dihydroxy-17-oxoandrostane, 3α,16α-dihydroxy-17-oxoandrostane, 3β,16β-dihydroxy-17-oxoandrostane, 3α,16β-dihydroxy-17-oxoandrostane, 3β,16α,17β-trihydroxyandrostane, 3β,16β,17β-trihydroxyandrostane, 3β,16α,17α-trihydroxyandrostane, 3β,16β,17α-trihydroxyandrostane, 3α,16α,17β-trihydroxyandrostane or 3α,16β,17β-trihydroxyandrostane that is within the scope of the claim 1 compounds, optionally wherein $-NH_2$, a substituted amine, a carbamate or an amide is present at R^4 , or an R^{10} is a hydroxyl, thiol, optionally substituted alkyl or a halogen at the 1-, 2-, 4-, 6-, 7-, 9- 11-, 12-, 14-, 15- or 16-position, wherein the R^{10} is present in the α-configuration or the β-configuration.

Claim 10 (original): The method of claim 1 wherein the subject has, or is subject or susceptible to developing, neutropenia.

Claim 11 (currently amended): The method of claim 10 wherein the subject is a human or another primate and wherein the neutropenia is postinfectious neutropenia, autoimmune neutropenia, chronic idiopathic neutropenia or a neutropenia resulting from or potentially resulting result from a cancer chemotherapy, chemotherapy for an autoimmune disease, an antiviral therapy, radiation exposure, tissue or solid organ allograft or xenograft rejection or immune suppression therapy in tissue or solid organ transplantation or ~~aging or immunesenescence~~ aging or immune senescence.

Claim 12 (original): The method of claim 11 wherein one R^4 is in the β-configuration or the α-configuration and is $-NH_2$, a substituted amine, a carbamate having the structure -NH-C(O)-O-optionally substituted alkyl or an amide having the structure -NH-C(O)-optionally substituted alkyl, which is optionally selected from $-NH_2$, $-NHCH_3$, $-N(CH_3)_2$, $-NHR^{PR}$, -NH-C(O)-H, -NH-C(O)-CH_3, -NH-C(O)-OCH_3, -NH-C(O)-OC_2H_5, -NH-C(O)-OC_3H_7 and -NH-C(O)-optionally substituted alkyl or wherein the formula 1 compound is a compound in groups 1 through 52 or an analog of a compound in groups 1 through 52.

Claim 13 (original): The method of claim 11 wherein the formula 1 compound is 3β-hydroxy-17β-aminoandrost-5-ene, 3β-hydroxy-16α-fluoro-17β-aminoandrost-5-ene, 3β-hydroxy-16β-fluoro-17β-aminoandrost-5-ene, 3β-hydroxy-16,16-difluoro-17β-aminoandrost-5-ene, 3β,16α-dihydroxy-17β-aminoandrost-5-ene, 3β,16β-dihydroxy-17β-aminoandrost-5-ene, 3β-hydroxy-16,16-dimethyl-17β-aminoandrost-5-ene, an ester or carbonate of any of these compounds or an analog of any of the foregoing compounds where the double bond at the 5-6 position is absent and a hydrogen or other R^{10} moiety is present at the 5-position in the α- or β-configuration and/or wherein the hydroxyl group (or ester or carbonate analog) at the 3-position is present in the α-configuration.

Claim 14 (original): The method of claim 11 wherein the formula 1 compound is 3β-hydroxy-17β-aminoandrost-5-ene.

Claim 15 (original): The method of claim 1 wherein the subject is a human having cystic fibrosis.

Claim 16 (original): The method of claim 15, wherein one or more symptoms or syndromes are ameliorated, or wherein the progression of the disease is reduced.

Claim 17 (original): The method of claim 16, wherein the one or more symptoms or syndromes are 1, 2, 3 or more of *Staphylococcus* (e.g., *S. aureus*), *Haemophilus influenzae, Pseudomonas* or *Burkholderia* respiratory tract or lung infection or propensity to develop a detectable infection or colonization, coughing, wheezing, cyanosis, bronchiolitis, bronchospasm, pneumothorax, hemoptysis, pancreatic exocrine insufficiency, bronchiectatic lung disease, atelectasis-consolidation, pulmonary edema, increased lung vascular hydrostatic pressure, increased lung vascular permeability, sinusitis, respiratory insufficiency, bronchial wall or interlobular septa thickening, reduction of forced expiratory volume in 1 second, dyspnea, impaired male fertility, elevated sweat chloride, mucous plugging, tree-in-bud sign, mosaic perfusion pattern, glucose intolerance or abnormal elevation of one or more of IL-4, IL-8, RANTES, neutrophil elastase, eosinophils, macrophages, neutrophils, eosinophil cationic protein or cysteinyl leukotrienes.

Claim 18 (original): The method of claim 15 wherein the formula 1 compound is 16α-bromoepiandrosterone, 16α-bromoepiandrosterone hemihydrate, 16α-hydroxyepiandrosterone, 16β-hydroxyepiandrosterone, 3α,17β-dihydroxyandrostane, 3β,17β-dihydroxyandrostane, 3α,16α,17β-trihydroxyandrostane, 3α,16β,17β-trihydroxyandrostane, 3β,16α,17β-trihydroxyandrostane, 3β,16β,17β-trihydroxyandrostane, or an ester, carbonate

or other analog of any of these compounds that can convert to the compound by metabolism or hydrolysis.

Claim 19 (original): A method to treat or to reduce the severity of a chronic allergy or an atopic disease, or one or more symptoms of the chronic allergy or atopic disease in a subject in need thereof, comprising administering an effective amount of a formula 1 compound of claim 1, wherein one R^1 is, or both R^1 together are, -OH, $-OR^{PR}$, $-SR^{PR}$, $-O-Si-(R^{13})_3$, -COOH, $-OSO_3H$, $-OPO_3H$, =O, =S, an ester, a thioester, a thionoester, a phosphoester, a phosphothioester, a phosphonoester, a phosphiniester, a sulfite ester, a sulfate ester, an amide, an amino acid, a peptide, an ether, a thioether, a carbonate or a carbamate, and the other R^1 is independently chosen;

and one R^4 is, or both R^4 together are, -OH, $-OR^{PR}$, $-SR^{PR}$, $-N(R^{PR})_2$, $-O-Si-(R^{13})_3$, -CHO, -CHS, -CN, -SCN, $-NO_2$, $-NH_2$, -COOH, $-OSO_3H$, $-OPO_3H$, =O, =S, =N-OH, =N-O-optionally substituted alkyl, an ester, a thioester, a thionoester, a phosphoester, a phosphothioester, a phosphonoester, a phosphiniester, a sulfite ester, a sulfate ester, an amide, an amino acid, a peptide, an ether, a thioether, an acyl group, a thioacyl group, a carbonate or a carbamate, and the other R^4 is independently chosen.

Claim 20 (original): The method of claim 19 wherein the compound is 16α-bromoepiandrosterone, 16α-bromoepiandrosterone hemihydrate, 16α-iodoepiandrosterone, 16-oxoepiandrosterone, 16-oxoandrosterone, 3β,16α-dihydroxyandrostane-17-one, 3α,16α-dihydroxyandrostane-17-one, 3β,16β-dihydroxyandrostane-17-one, 3α,16β-dihydroxyandrostane-17-one, 3β,16α,17β-trihydroxyandrostane, 3α,16α,17β-trihydroxyandrostane, 3β,16β,17β-trihydroxyandrostane, 3α,16β,17β-trihydroxyandrostane, or an analog of any of these compounds that is (1) 2-oxa or 11-oxa substituted, (2) substituted at the 7-position with an α-halogen, β-halogen, α-hydroxyl, β-hydroxyl or oxo moiety, (3) a D-ring homo analog, (4) a 19-nor analog and/or (5) an analog of any of the foregoing compounds that is substituted with an R^{10}

substituent disclosed herein, e.g., wherein the R^{10} is a hydroxyl, thiol, optionally substituted alkyl or a halogen such as fluorine or bromine at the 1-, 2-, 4-, 6-, 9- 11-, 12-, 14-, 15- or 16-positions, wherein the R^{10}, e.g., the hydroxyl, thiol, optionally substituted alkyl or halogen is present in the α-configuration or the β-configuration.

Claim 21 (original): The method of claim 19 wherein the level or activity of IgE in the subject is at least transiently detectably reduced.

Claim 22 (original): The method of claim 1 wherein the subject is a human who has a sickle cell disease.

Claim 23 (currently amended): The method of claim 22 wherein the treatment reduces (1) the severity of pain during vascular or microvascular occlusions, (2) the severity of vascular or microvascular occlusions or (3) ~~the frquency of vascular~~ the frequency of vascular or microvascular occlusions.

Claim 24 (original): The method of claim 22 wherein the formula 1 compound is administered by an intermittent administration protocol.

Claim 25 (original): The method of claim 22 wherein one R^1 is, or both R^1 together are, -H, -OH, $-OR^{PR}$, $-SR^{PR}$, $-O-Si-(R^{13})_3$, -COOH, $-OSO_3H$, $-OPO_3H$, =O, =S, an ester, a thioester, a thionoester, a phosphoester, a phosphothioester, a phosphonoester, a phosphiniester, a sulfite ester, a sulfate ester, an amide, an amino acid, a peptide, an ether, a thioether, a carbonate or a carbamate, and the other R^1 is independently chosen; and

one R^4 is, or both R^4 together are, -OH, $-OR^{PR}$, $-SR^{PR}$, $-N(R^{PR})_2$, $-O-Si-(R^{13})_3$, -CHO, -CHS, -CN, -SCN, $-NO_2$, $-NH_2$, -COOH, $-OSO_3H$, $-OPO_3H$, =O, =S, =N-OH, =N-O-optionally substituted alkyl, an ester, a thioester, a thionoester, a phosphoester, a phosphothioester, a phosphonoester, a phosphiniester, a sulfite ester, a sulfate ester, an amide, an amino acid, a

peptide, an ether, a thioether, an acyl group, a thioacyl group, a carbonate or a carbamate, and the other R^4 is independently chosen.

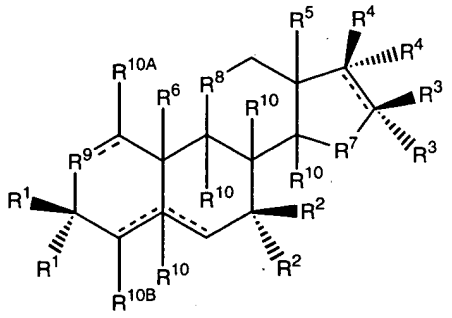
Claim 26 (canceled)

Claim 27 (original): A method to modulate the expression in a cell of the level of or an activity of 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more gene products or gene transcripts in the cell, comprising contacting an effective amount of the compound with the cell under suitable conditions and for a sufficient time to detectably modulate the activity or level of the genes, or gene products in the cell, wherein the compound is a compound of any of embodiments 1-9 and the gene products or gene transcripts are selected from USF1, c-Fos, EGR1, Cul1, RIPK2, IκBα, IκBKb, NF-κB1 p50, FCAR, c-Fos/ C/EBPβ, RANTES, ICAM1, TSG (TNFAIP6), IL-2 receptor α, GRO2, GRO3, HO1, Jun B, c-Fos/JunB complex, JunB/ATF3 complex, c-Jun, c-Fos/c-Jun complex, ATF-3, MMP1, TSG-6 (TNFAIP3), AP-1, EGR1, TGFβ, ATF-3/c-Jun complex, c-Fos, MMP3, IL-8, STAT5A, STAT5B, CDKN1A, IFNγ receptor 2 (IFNγR2), T-bet, C reactive protein, immunoglobulin E, an AP-1 family protein, GATA-3, Jak2, Tyk2, stat1, stat3, stat4, stat5, stat6, MIP-1α, MIP-2, IP-10, MCP-1, TNF-α, TNF-β, LT-β, IFN-α, IFN-β, TGF-β1, NF-κB, IL-1α, IL-1β, IL-4, IL-6, IL-10, IL-12 receptor β1, IL-12p35, IL-12p40, IL-23, IL-23 receptor, Nrf2, a Maf protein, a thioredoxin, NQO1, GST, HO 1, SOD2, the catalytic subunit of γGCS, the regulatory subunit of γGCS and xCT.

Claims 28-37 (cancelled)

Claim 38 (new): A method to treat or ameliorate allogeneic tissue, organ or cell population rejection in a mammal that is experiencing the allogeneic tissue, organ or cell population rejection or that may be expected to experience the allogeneic tissue, organ or cell population rejection, comprising

administering to the mammal an effective amount of a compound having the structure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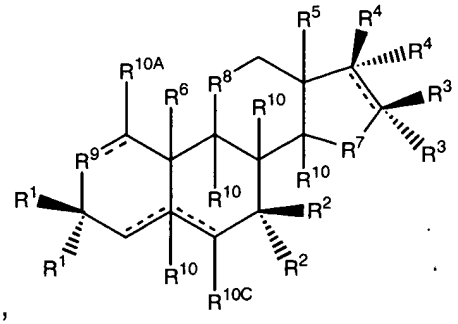
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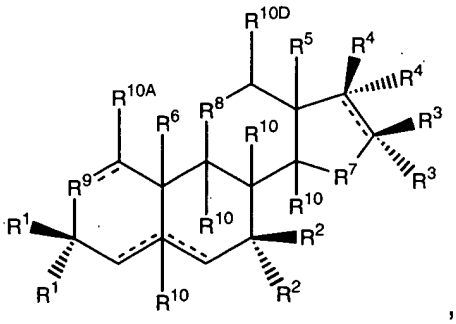
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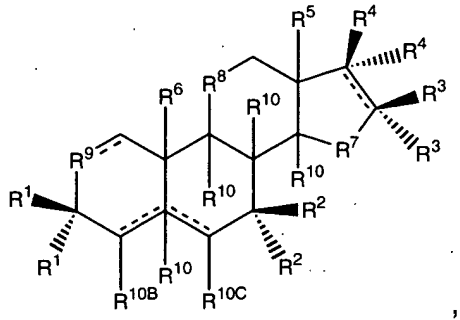
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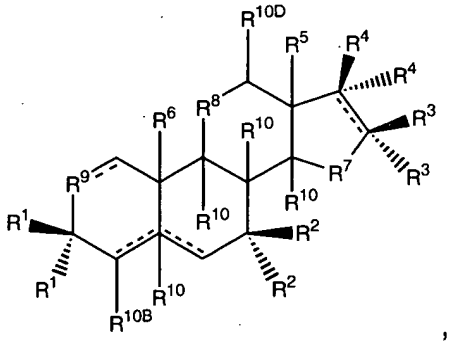
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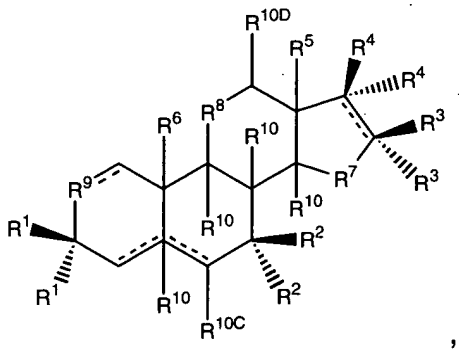
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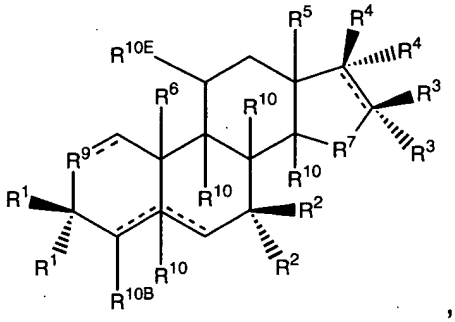
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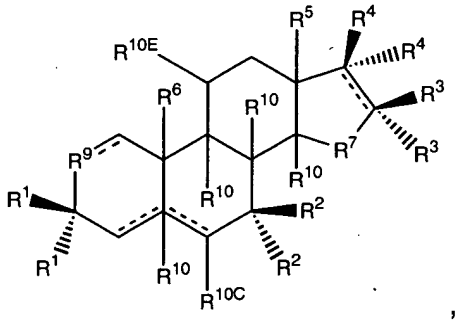
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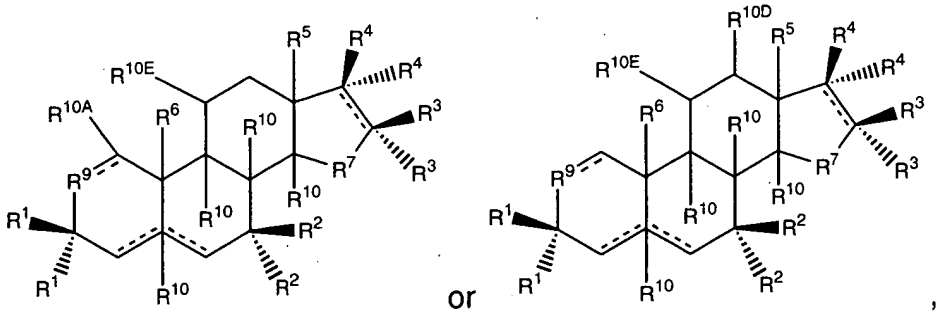


wherein,

R^{10} moieties at the 5 (if present), 8, 9 and 14 positions respectively are in the α,α,α,α, α,α,α,β, α,α,β,α, α,β,α,α, β,α,α,α, α,α,β,β, α,β,α,β, β,α,α,β, β,α,β,α, β,β,α,α, α,β,β,α, α,β,β,β, β,α,β,β, β,β,α,β, β,β,β,α or β,β,β,β configurations,

wherein R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} respectively are in the α,α, α,β, β,α or β,β configurations,

wherein, each R^1, R^2, R^3, R^4, R^5, R^6, R^{10}, R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} independently are -H, -OH, $-OR^{PR}$, $-SR^{PR}$, $-N(R^{PR})_2$, $-O-Si-(R^{13})_3$, -CHO, -CHS, -CN, -SCN, $-NO_2$, $-NH_2$, -COOH, $-OSO_3H$, $-OPO_3H$, an ester, a thioester, a thionoester, a phosphoester, a phosphothioester, a phosphonoester, a phosphiniester, a sulfite ester, a sulfate ester, an amide, an amino acid, a peptide, an ether, a thioether, an acyl group, a thioacyl group, a carbonate, a carbamate, a halogen, an optionally substituted alkyl group, an optionally substituted alkenyl group, an optionally substituted alkynyl group, an optionally substituted aryl moiety, an optionally substituted heteroaryl moiety, an optionally substituted heterocycle, an optionally substituted monosaccharide, an optionally substituted oligosaccharide, a nucleoside, a nucleotide, an oligonucleotide, a polymer, or,

one more of R^1, R^2, R^3, R^4, R^5, R^6, R^{10}, R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} are =O, =S, =N-OH, $=CH_2$, $=CH-CH_3$, or an independently selected spiro ring and the hydrogen atom or the second variable group that is bonded to the same carbon atom is absent, or,

one or more of two adjacent R^1-R^6, R^{10}, R^{10A}, R^{10B}, R^{10C}, R^{10D} and R^{10E} comprise an independently selected epoxide, acetal, a thioacetal, ketal or thioketal;

R^7 is $-C(R^{10})_2-$, $-C(R^{10})_2-C(R^{10})_2-$, $-C(R^{10})_2-C(R^{10})_2-C(R^{10})_2-$, $-C(R^{10})_2-O-C(R^{10})_2-$, $-C(R^{10})_2-S-C(R^{10})_2-$, $-C(R^{10})_2-NR^{PR}-C(R^{10})_2-$, $-O-$, $-O-C(R^{10})_2-$, $-S-$, $-S-C(R^{10})_2-$, $-NR^{PR}-$ or $-NR^{PR}-C(R^{10})_2-$;

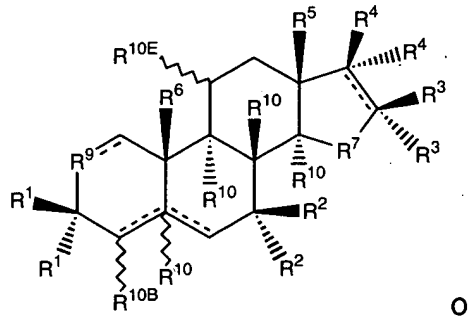
R^8 and R^9 independently are $-C(R^{10})_2-$, $-C(R^{10})_2-C(R^{10})_2-$, $-O-$, $-O-C(R^{10})_2-$, $-S-$, $-S-C(R^{10})_2-$, $-NR^{PR}-$ or $-NR^{PR}-C(R^{10})_2-$, or one or both of R^8 or R^9 independently are absent, leaving a 5-membered ring;

R^{13} independently is C_{1-6} alkyl; and

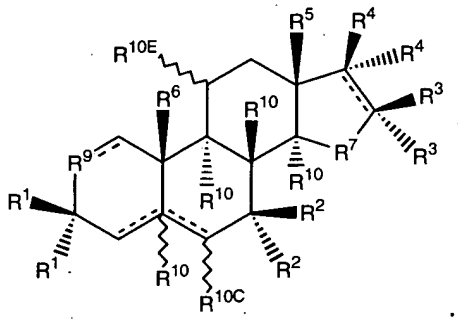
R^{PR} independently are -H or a protecting group, provided that one R^4 is $-NH_2$, an optionally substituted amine, $-N(R^{PR})^2$, an amide, a carbamate or an N-linked amino acid or both R^4 together are =NOH, or =NO-optionally substituted alkyl.

Claim 39 (new): The method of claim 38 wherein the allogeneic tissue, organ or cell population rejection is graft versus host disease.

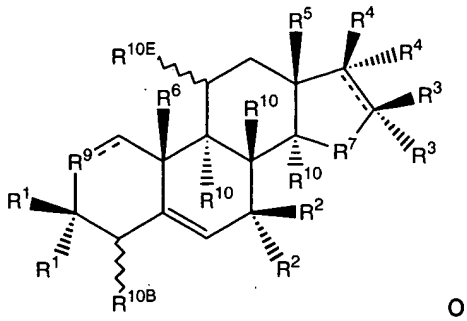
Claim 40 (new): The method of claim 39 wherein the compound has the structure



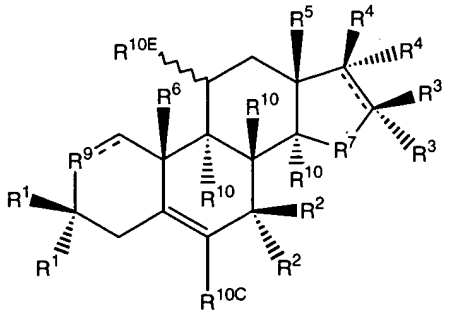
or



Claim 40 (new): The method of claim 39 wherein the compound has the structure

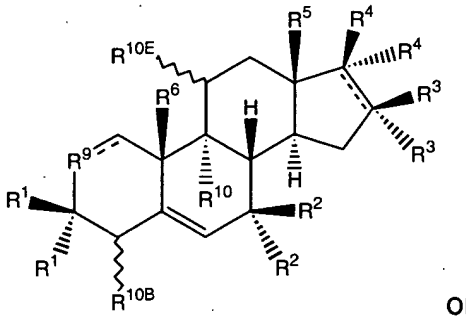


or

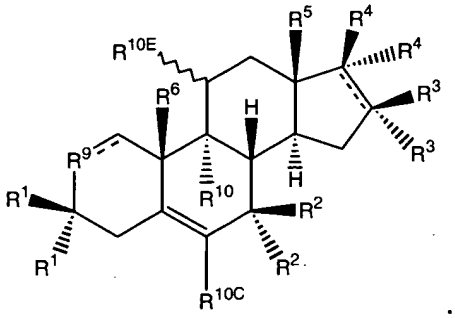


Claim 41 (new): The method of claim 40 wherein one R^1 is -OH, an ester or a carbonate and the other R^1 is -H or optionally substituted alkyl.

Claim 42 (new): The method of claim 41 wherein the compound has the structure



or



Claim 43 (new): The method of claim 42 wherein R^4 in the β-configuration is a -NH-optionally substituted alkyl, R^4 in the α-configuration is -H, -CN -SCN or optionally substituted alkyl, or both R^4 together are =NOH or =NO-optionally substituted alkyl, R^5 is optionally substituited alkyl and R^6 is -H, halogen or optionally substituited alkyl.

Claim 44 (new): The method of claim 43 wherein the compound is 3β-hydroxy-5-androstene-17β-methylamine, 3β-hydroxy-5-androstene-17β-ethylamine, 3β-hydroxy-5-androstene-17-oxime, 3β,16α-dihydroxy-5-androstene-17β-methylamine, 3β,16α-dihydroxy-5-androstene-17β-ethylamine, 3β,16α-dihydroxy-5-androstene-17-oxime, 3β,16β-dihydroxy-5-

androstene-17β-methylamine, 3β,16β-dihydroxy-5-androstene-17β-ethylamine, 3β,16β-dihydroxy-5-androstene-17-oxime, 3α,16α-dihydroxy-5-androstene-17β-methylamine, 3α,16α-dihydroxy-5-androstene-17β-ethylamine, 3α,16α-dihydroxy-5-androstene-17-oxime or a 19-nor or 2-oxa analog of any of these compounds.

Claim 45 (new): The method of claim 44 wherein the compound is 3β-hydroxy-5-androstene-17β-methylamine.

Claim 46 (new): The method of claim 43 wherein R^{10} at the 9-position is a halogen.

Claim 47 (new): The method of claim 43 wherein R^{10B}, R^{10C} or R^{10E} is -OH.

Claim 48 (new): The method of claim 43 wherein R^{9} is -CH(OH)- or -CH(halogen)-.